

**WHAT IS CLAIMED IS:**

1. A sensor assembly for a stringed musical instrument having a plurality of movable strings comprising:

5 at least one blade adapted to be disposed adjacent the movable strings;

at least one magnet disposed adjacent said at least one blade to generate a magnetic field through said at least one blade;

10 a primary winding disposed adjacent said at least one blade to create a primary current from a disruption in the magnetic field by the movable strings, the primary current creating a primary electromagnetic flux; and

15 at least one secondary winding spaced from said primary winding and being magnetically coupled to said primary winding, said at least one secondary winding transforming the primary electromagnetic flux into a secondary current adapted to pass out the stringed musical instrument.

20 2. A sensor assembly as set forth in claim 1 wherein said at least one blade extends through a slot in said primary winding.

3. A sensor assembly as set forth in claim 1 wherein said at least one blade is a thin plate fabricated from a ferromagnetic material that is susceptible to a magnetic field.

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4. A sensor assembly as set forth in claim 1 wherein said at least one blade is fabricated from cold-rolled steel.

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5. A sensor assembly as set forth in claim 1 wherein said at least one blade is electrically connected to one side of said primary winding.

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6. A sensor assembly as set forth in claim 1 including a plurality of blades, said primary winding being disposed between said blades and electrically connected thereto.

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7. A sensor assembly as set forth in claim 1 wherein said blade includes a base end and a distal end, said base end being disposed adjacent said at least one magnet and said distal end being disposed adjacent the movable strings.

8. A sensor assembly as set forth in claim 7 wherein said base is fixedly secured to said at least one magnet.

5 9. A sensor assembly as set forth in claim 7 wherein said distal end is curvilinear.

10 10. A sensor assembly as set forth in claim 1 wherein said primary winding is a closed loop.

11. A sensor assembly as set forth in claim 1 wherein said primary winding is an open loop.

15 12. A sensor assembly as set forth in claim 1 wherein said primary winding has a generally rectangular shape of a pre-determined length and a slot extending through said primary winding through which said at least one blade extends.

20 13. A sensor assembly as set forth in claim 1 wherein said at least one magnet includes a plurality of magnets.

14. A sensor assembly as set forth in claim 1 wherein said at least one magnet is generally rectangular and extends substantially longitudinally.

5 15. A sensor assembly as set forth in claim 1 wherein said at least one magnet is generally circular in shape.

10 16. A sensor assembly as set forth in claim 1 including a first core element extending through one end of said at least one secondary winding and a second core element extending through the other end of said at least one secondary winding, said first and second core elements adapted to receive the electromagnetic flux from said primary winding and  
15 transform the electromagnetic flux into the secondary current.

17. A sensor assembly as set forth in claim 16 wherein said first and second core elements are substantially "U" shaped and are adapted to telescopingly engage each other.

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18. A sensor assembly for a stringed musical instrument having a plurality of movable strings comprising:

a blade disposed adjacent the plurality of movable strings and adapted to provide a flux connection to the plurality of movable strings;

at least one magnet adapted to generate a magnetic  
5 field through and conducted by said blade, the plurality of movable strings adapted to disrupt the magnetic field;

a primary winding disposed adjacent said at least one magnet and adapted to create a primary current from a disruption in the magnetic field by the plurality of movable  
10 strings, the primary current creating a primary electromagnetic flux;

at least one secondary winding spaced from and magnetically coupled by a plurality of high magnetic permeability metal laminate core elements to said primary  
15 winding, said at least one secondary winding adapted to transform the primary electromagnetic flux into a secondary current adapted to pass out the instrument;

a case that extends longitudinally, has a generally "U" shaped cross-section defining a substantially longitudinal  
20 channel, defines an interior surface of said case, and is fabricated from a single piece of ferromagnetic material and adapted to secure said at least one magnet to said interior surface; and

a cover disposed about and secured to said at least one secondary winding.

19. A sensor assembly for a stringed musical instrument having a plurality of movable strings comprising:

a plurality of blades adapted to be disposed adjacent the movable strings;

a plurality of magnets disposed between said blade to generate a magnetic field through said blades;

10 a primary winding disposed between said blades and electrically connected thereto to create a primary current from a disruption in the magnetic field by the movable strings, the primary current creating a primary electromagnetic flux; and

15 a plurality of secondary winding spaced from said primary winding and being magnetically coupled to said primary winding, said secondary windings transforming said primary electromagnetic flux into a secondary current adapted to pass out the stringed musical instrument.